

# **Development of the National Alternative Jet Fuels Research & Development Strategy**

**Status Update and Next Steps**

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**August 26, 2014**

# Presentation Outline

- Background
- Snap-Shot of Current Status
- Next Steps

## Strategy Development Team

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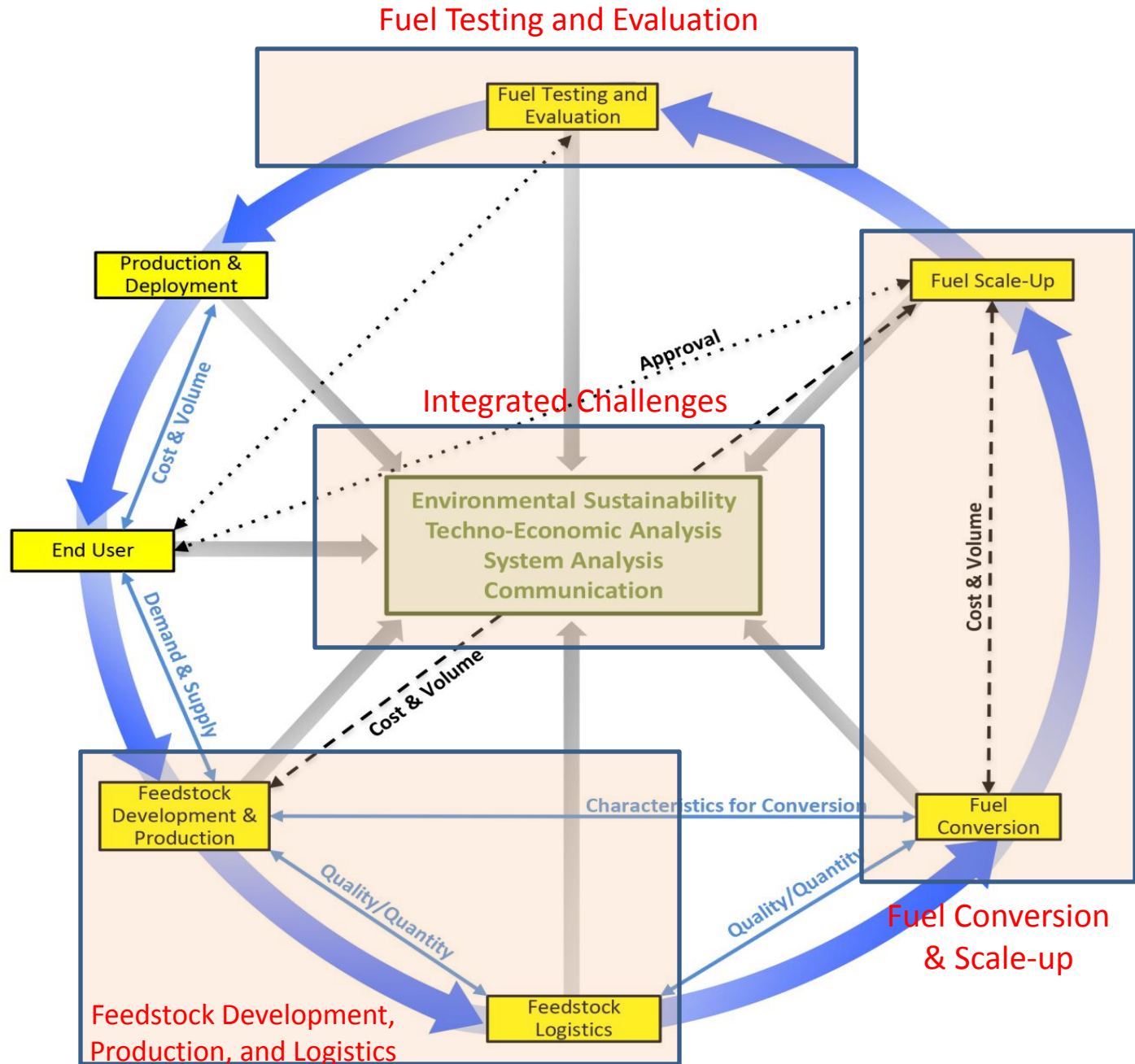
# Strategy Mission Statement

## Draft Statement:

The mission of the U.S. AJF R&D enterprise is to enable the development, production, and use of economically viable alternative jet fuels that provide environmental and social benefits relative to conventional fuels while enhancing U.S. energy security.

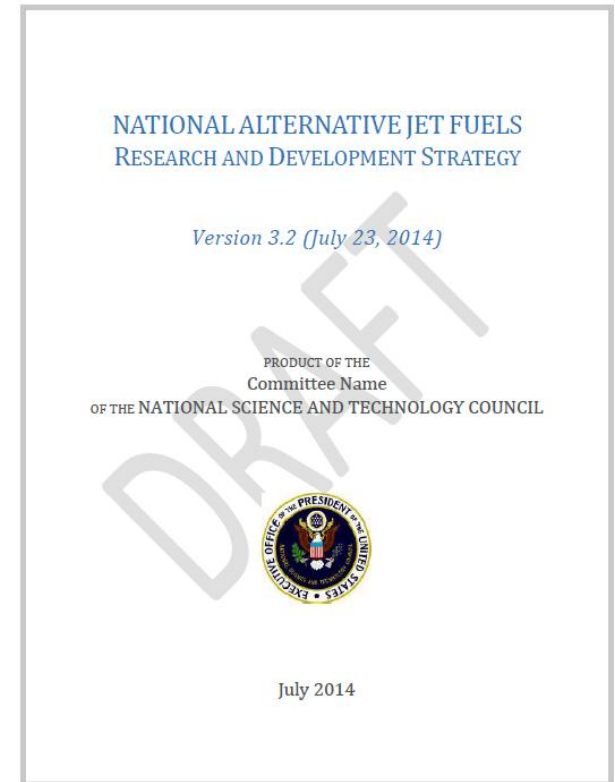
*Purposely not specific to individual agency's goal and/or efforts on AJF.*

# Alternative Jet Fuels: Development Path Connections and Feedbacks



# Overview Document Outline

- Introduction
- Mission Statement
- Rationale
- Guiding Policies
  - Energy and Environment
  - Aeronautics R&D
  - Agency-Level Goals and Initiatives
- Alternative Jet Fuels Development Path Overview
- R&D Goals and Objectives
  - Feedstock Development, Production, and Logistics
    - Approach to Feedstock R&D
    - Current Status of Feedstock R&D
    - Advancing Feedstock R&D
  - Fuel Conversion and Scale-Up
    - Approach to Conversion and Scale-Up R&D
    - Current Status of Conversion and Scale-Up R&D
    - Advancing Conversion and Scale-Up R&D
  - Fuel Testing and Evaluation
    - Approach to Testing and Evaluation R&D
    - Current Status of Testing and Evaluation R&D
    - Advancing Testing and Evaluation R&D
  - Integrated Challenges
- Non-technical Challenges
- International Coordination
- Implementation
- Abbreviations



# Example – Goals & Objectives Table (multiple time horizon)

Fuel Testing and Evaluation Goals	Objectives		
	Near-Term (<5 years)	Mid-Term (5–10 years)	Far Term (>10 years)
Facilitate ASTM approval of additional AJF pathways by enabling efficient evaluation for performance and safety through the advancement of certification and qualification processes and the collection and analysis of data.	Support capability to perform all testing required by ASTM D4054, including fuel property testing, component/rig testing, and aircraft engine testing to complete evaluation for viable alternative jet fuel pathways	Advance fuel composition and combustion modeling, experimentation, and analysis	Develop specification criteria and structure that allows for broad-based approval of alternative jet fuels based on the composition of those fuels
	Establish a coordinated process to track and monitor progress of ASTM alternative jet fuel task forces, conduct data review and testing activities, and establish schedules and prioritize projects	Develop improved test methods for certification and qualification that allow for more rapid, efficient and less costly fuel evaluation to support approvals	
	Develop a stage-gate approach for approval of alternative jet fuels with test and evaluation requirements commensurate with the blend percentages		

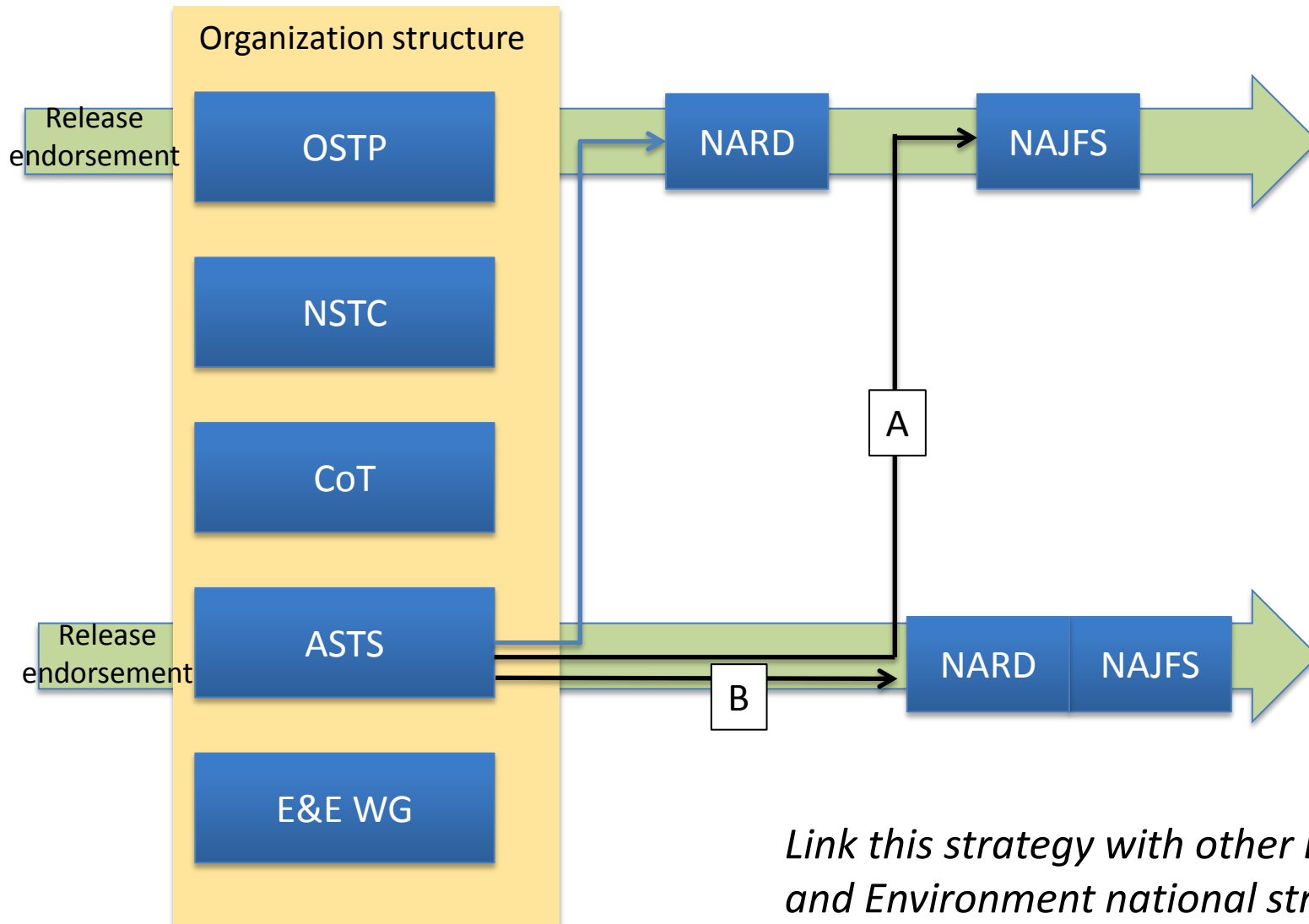
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Integrated Challenges Goals	Objectives		
	Near-Term (<5 years)	Mid-Term (5–10 years)	Far Term (>10 years)
Advance understanding of and improve the environmental sustainability of AJF production and use	Advance the scientific understanding of environmental impact of AJF production and use, including those related to life-cycle emissions that impact climate change	Contribute to internationally recognized approaches to AJF environmental sustainability analysis with quantitative understanding of different conclusions	Develop improved tools and approaches for environmental sustainability assessment applicable across all stages of the supply chain and generalizable to all AJF pathways
	Improve natural resource requirement assessment for AJF production	Develop best practices guidance for collecting AJF life-cycle inventory data aligned with each stage of fuel and feedstock readiness.	
	Compile, assess, and disseminate definitions, protocols, data, and tools in support of environmental sustainability analysis		
Develop and validate a comprehensive systems model to support viable AJF deployment	Advance techno-economic and regional development path analyses of AJF	Develop analytical capabilities for components of the systems model	Validate a comprehensive systems model
	Evaluate impacts of AJF production on social sustainability	Develop an integrated framework that combines economic, environmental and social models to assess AJF production and use across varied regions	
	Identify and quantify the elements and interactions among elements that are required to develop a model that can be used to create scenarios for AJF deployment that reflect the need for environmental, economic and social sustainability	Utilize the AJF system-wide production framework to examine varied scenarios of AJF production to identify areas that could improve the sustainability of AJF production	

# Current Status

- Completed the first draft of the Strategy
- Submitted to the ASTS leadership for initial review and feedback

# Strategy Release Options



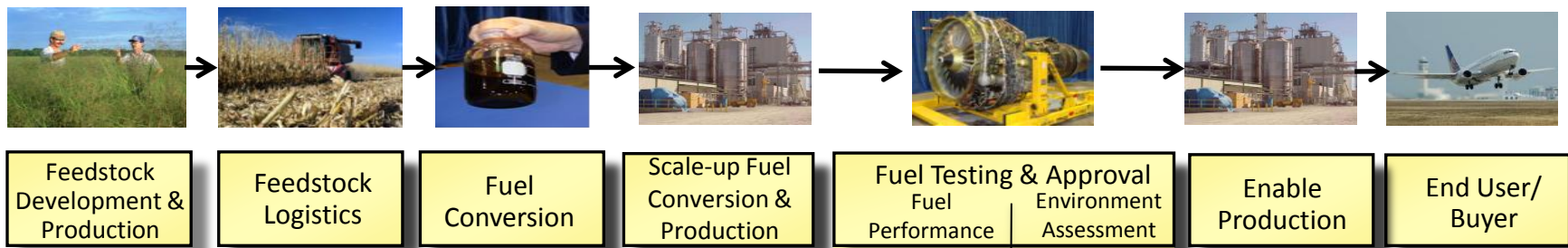
*Link this strategy with other Energy and Environment national strategies and initiatives, as applicable*



# Next Steps

- **Finalize Strategy release options**
- **Document review, approval & clearance process; and Timeline**
  - Agency internal reviews
  - ASTS review
  - Non-Federal stakeholder inputs
  - OSTP/NSTC clearance & approval
- **Distribution of Strategy and Outreach**
- **Implementation of the Strategy**
  - Suggestion for value-added progress assessment by a Working Group comprising of Fed and non-Fed representatives

# FY14 Funding Profile of Interagency Efforts Related to Alternative Jet Fuels R&D Activities



Estimates of direct agency funding used to secure procurements#

USDA	✓ ~\$31M***				---	✓	✓	✓
DOC	✓	---	✓ Limited in-house activities				---	✓
DoD	---	---	---	---	✓ ~\$13M‡	✓	✓	✓ None
DOE	✓	✓	✓ ~\$100M*		---	✓	✓	---
EPA	---	---	---	---	---	✓ **		---
FAA	---	✓	---	✓	✓ ~\$7M‡		---	✓
NASA	---	---	---	---	✓ ~\$2.5M‡		---	---
NSF	✓ ~\$56M §			---	---	---	---	---

#All numbers do not include in-house activities and civil servant salaries/overhead

\*Includes all DOE base funding in the area of any fuel type made from lignocellulosic biomass and algae. This also includes AJF.

\*\*There are no specific line items for AJF in EPA programs. AJF is one of many fuel types that can qualify for the Renewable Fuel Standard (RFS) program implemented by the EPA.

\*\*\*R&D spending specific to projects with AJF potential, includes first three boxes.

§ Based on FY13 budget execution. Note that this amount is not specific to AJF only but to all alternative fuels research funded by NSF based on the best proposals received.

‡These funds directly support AJF development, testing and demonstration.